

We claim

1. Process for the separation from a non-aqueous solvent of a substance which is present in said non-aqueous solvent in dissolved form, colloidal form, or in both of such forms, which comprises passing said non-aqueous solvent through a membrane having a hydrophobic coating and a mean pore diameter of not more than 30 nm.
2. Process according to Claim 1, wherein said substance is a catalyst
3. Process according to Claim 1, wherein said membrane is a porous membrane.
4. Process according to Claim 3, wherein said porous membrane is an inorganic membrane.
5. Process according to claim 4, wherein said inorganic membrane is a ceramic membrane.
6. Process according to claim 5, wherein said ceramic membrane is formed of  $\text{Al}_2\text{O}_3$ ,  $\text{TiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{SiO}_2$  or a mixture of two or more of said oxides
7. Process according to Claim 1 or 3, wherein the mean pore diameter of the membrane is not more than 20 nm.
8. Process according to Claim 7, wherein said mean pore diameter is from 2 nm to 10 nm
9. Process according to Claim 1 or 3, wherein said hydrophobic coating is applied by reacting the membrane surface with a silane.
10. Process according to Claim 1 or 3, wherein said nonaqueous solvent is selected from the group consisting of alcohols, ethers, aromatic hydrocarbons, and optionally halogenated aliphatic hydrocarbons.
11. Process according to Claim 10, wherein said alcohols are methanol or ethanol, said ethers are tetrahydrofuran, said aromatic hydrocarbons are chlorobenzene or toluene and said optionally halogenated aliphatic hydrocarbons are dichloromethane.
12. Process according to Claim 2, wherein said catalyst is selected from the group consisting of the organometallic complex compounds, ligands of organometallic complex compounds and complex compounds of elements of group IVA, VA, VIA, VIIA, VIIIA or IB of the Periodic Table of the Elements.
13. Process according to Claim 12, wherein said catalysts are selected from the group consisting of complex compounds of manganese, iron, cobalt, nickel, palladium, platinum, ruthenium, rhodium or iridium.

14. Process according to Claim 13, wherein said complex compounds are selected from the group consisting of Ru-BINAP, Pd-BINAP, Rh-EtDUPHOS and complex compounds of triphenylphosphine with palladium or rhodium.
- 5 15. Process according to Claim 1 or 3, wherein said separation is carried out at a temperature of -20°C to 200°C.
16. Process according to Claim 15, wherein said temperature is 0°C to 150°C
17. Process according to Claim 1 or 3, wherein said process is conducted at a transmembrane pressure of from 2 000 to 40 000 hPa.